

surface and applying to the anodic oxide film a coating consisting essentially of at least one adhesion promoter selected from at least one of polyacrylic acid and salts and esters thereof, poly(hydroxyphenyl)styrene and pre-treatments comprising one or more of Cr, Mn, Mo, Si, Ti, Zr and F, provided that adhesion promoters based on silicon-organic compounds are excluded.

Cancel claim 7.

R E M A R K S

Claims 1 and 15 have been amended to add, inter alia, recitals set forth in original claim 7, which has accordingly been cancelled. Attached hereto is a marked-up version of the amended claims showing the changes made. Since this Amendment does not increase either the total number of claims or the number of independent claims, no additional fee is necessary.

Claims 1 - 6 and 8 - 21 are in the application. Of these, claims 15 - 21 have been withdrawn from consideration as directed to a non-elected invention, and claims 1 - 14 have been rejected.

Election/Restrictions

In response to the requirement for restriction, applicants hereby affirm the provisional election of Group I (claims 1 - 14).

The requirement for restriction is nevertheless traversed. Both U.S. patent No. 3,935,349 and U.S. patent No. 5,439,747 use silanes as adhesion promoters, which substances are excluded from the claims. EP-A-0426328 describes a treatment prior to electro-deposition of an organic paint film, stating (at p. 4, lines 37-43) that ". . . a chromate treatment or an anodically oxidizing film forming treatment may be employed. . . ." There is no teaching or suggestion to apply a chromate treatment or any other adhesion promoter together with an anodic film. Applicants

submit, therefore, that claims 15 to 21 are directed to the same general inventive concept as claims 1 to 14. Moreover, the amendment herein made to independent claims 1 and 15 (discussed below) is believed to provide a special technical feature that provides a contribution over the prior art.

Reconsideration and withdrawal of the requirement for restriction are therefore respectfully requested.

Claim Rejections - 35 USC §102

Claims 1 - 4, 6, 7, 9 and 10 have been rejected as being anticipated by Wieserman et al. The Wieserman et al. patent describes a highly specialized treatment comprising anodizing to form a barrier layer in an electrolyte containing a 1 to 30 carbon phosphonic or phosphinic acid, followed by the formation of a functional layer comprising the reaction product of the phosphonic or phosphinic acid with the oxide. It appears that the latter layer forms automatically and one does not have to do anything extra after the anodizing to achieve it.

The present Amendment adds to claim 1 limitations set forth in original (now cancelled) claim 7. Similar amendments are made in claim 15. Further support for these amendments in claims 1 and 15 can be found in applicants' specification at p. 3, lines 3-4, 24 and 29.

P is not one of the values originally listed in claim 7 and now recited in amended claim 1; therefore, amended claim 1 distinguishes over Wieserman et al. Furthermore, the teaching at col. 7, line 31, of Wieserman et al. is not relevant to amended claim 1. In this respect, this paragraph contains an enormous list of materials which may be used in conjunction with the phosphonic/phosphinic acid layer for control in specific applications. These materials seem to be the corresponding derivatives of phosphonic/phosphinic acid such as vinyl phosphonic acid in Example 5 or styrene phosphonic acid in Example 10, not the free individual compound. Furthermore, the reference is to polysty-

renes, not to poly(hydroxyphenyl)styrene which is a particular material having properties different from 'polystyrenes' in general. It appears that the derivatives in this paragraph can be used for the improved adhesion of the materials listed in the following paragraph, but is clearly essential that they be used as derivatives of phosphinic or phosphonic acid in the anodizing step to attain the stated result.

With regard to the method of the present invention, this is different in that the applicants use an anodic film which may also be porous and is more readily produced commercially, since the forming voltages used for these are safe (maximum about 50V) and less isolation is required on a production line. In addition, an additional layer is deliberately applied in a second step. This is advantageous in that neither the anodizing nor the adhesion promoter is compromised by the requirement to perform both jobs at once. Even if some of the functional groups can be incorporated into a phosphinic or phosphonic molecule it will be (1) inordinately expensive to make such a specialized chemical and (2) options, and therefore performance, are bound to be limited since many will not be stable chemicals and therefore will be unsuitable for modern production methods.

The essential feature of Wieserman et al. is the teaching of a barrier layer. The first approach of a person versed in the art would be to use a porous anodic film and, if this does not work, to try a chemical pre-treatment such as a roller coatable or spray applicable proprietary coating. The idea of introducing a two step process which requires both a cell and a chemical applicator is not obvious.

Claim Rejections - 35 USC §103

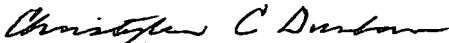
The Examiner has combined Wefers et al. with Wieserman et al. in an obviousness rejection of claims 4 and 10 under 35 USC §103(a). The teaching of Wefers et al. is very similar to that of Wieserman et al., but includes the extra option of using a

hydroxide film formed, for example, by treatment in triethanolamine (this forms a boehmite film). Wefers et al. is relied on only for film thicknesses; applicants submit that the amendments made to claim 1 distinguish claims 4 and 10 patentably over any proper combination of Wieserman et al. and Wefers et al.


With reference to the rejection of claims 5, 8 and 11 - 14 under §103(a) as unpatentable over Wieserman et al. in view of Wefers et al. and Totsuka et al., again it is submitted that the secondary references fail to supply what is lacking in Wieserman et al. regarding the novel and distinguishing features of amended claim 1. Moreover, as to Totsuka et al., applicants submit that persons skilled in the art would not take the composition of a well known conversion coating as making it obvious to use such a chromate-containing conversion coating over a thin anodic film. There is simply no teaching in the prior art to achieve this.

For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,


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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Assistant Commissioner for Patents, Washington, D.C. 20231.


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Amend claims 1 and 15 as follows:

1. (Amended) An aluminium workpiece having on a surface thereof an anodic oxide film and a coating which consists essentially of at least one adhesion promoter selected from at least one of polyacrylic acid and salts and esters thereof, poly(hydroxyphenyl)styrene and pretreatments comprising one or more of Cr, Mn, Mo, Si, Ti, Zr and F, providing that promoters based on silicon-organic compounds are excluded.

15. (Amended) A method of treating an aluminium workpiece, which method comprises precleaning a surface of the workpiece, anodising the workpiece so as to form an anodic oxide film on the surface and applying to the anodic oxide film a coating consisting essentially of at least one adhesion promoter selected from at least one of polyacrylic acid and salts and esters thereof, poly(hydroxyphenyl)styrene and pre-treatments comprising one or more of Cr, Mn, Mo, Si, Ti, Zr and F, provided that adhesion promoters based on silicon-organic compounds are excluded.